-2-

PENDING CLAIMS

1. (currently amended) A method comprising:

    performing a ~~head~~transducer polarity detection routine comprising the steps of:

        setting a read gate period duration to a first value;

        searching for a good address mark signal during a first read gate period with a channel polarity set to a first polarity; and

        identifying a polarity of a ~~data~~ ~~head~~transducer based upon the channel polarity when the good address mark is detected.

2. (currently amended) The method of claim 1, and if the good address mark is not found during the first read gate period, then prior to the identifying step the ~~head~~transducer polarity detection routine further comprising:

    toggling the polarity of the channel to a second polarity; and

    searching for the good address mark during a second read gate period with the channel polarity set to the second polarity.

3. (currently amended) The method of claim 2, wherein the ~~head~~transducer polarity detection routine further comprises repeating the steps of searching for the good address mark during subsequent read gate periods until the good address mark is found, the polarity of the channel being toggled between the first and second polarities after the completion of each read gate period in which the good address mark is not found.

4. (original) The method of claim 3, wherein setting the read gate period duration to the first value further comprises setting a servo gate period duration to a time corresponding to a predetermined number of servo sectors.

5. (original) The method of claim 4, wherein the steps of searching for the good address mark signal further comprise:

    determining whether an address mark has been detected;

    de-asserting the read gate if it is determined that an address mark has been detected; and

-3-

determining whether the detected address mark qualifies as the good address mark.

6. (currently amended) The method of claim 5, wherein if it is determined that the detected address mark qualifies as the good address mark, the ~~head~~transducer polarity detection routine further comprising setting the servo gate period duration to a time corresponding to one servo sector.

7. (currently amended) The method of claim 3, and further comprising:
performing the ~~head~~transducer polarity detection routine for each of a plurality of ~~data~~ ~~head~~transducers to determine a polarity for each ~~data head~~transducer; and
storing the polarity for each of the plurality of ~~data head~~transducers.

8. (currently amended) The method of claim 7, and further comprising:
determining if a predetermined number of consecutive errors have occurred; and
if the predetermined number of consecutive errors have occurred, then performing the ~~head~~transducer polarity detection routine to determine whether a ~~head~~ polarity flip has occurred.

9. (currently amended) The method of claim 8, and further comprising updating the stored polarity for any ~~head~~transducer which is determined to have had a ~~head~~ polarity flip.

10. (currently amended) An apparatus comprising:
a ~~data head~~transducer;
a channel coupled to the ~~data head~~transducer; and
circuitry coupled to the channel and configured to perform a ~~head~~transducer polarity detection routine comprising the steps:
setting a read gate period duration to a first value;
searching for a good address mark signal using the ~~data head~~transducer during a first read gate period with a channel polarity set to a first polarity; and

-4-

identifying a polarity of the ~~data head~~ transducer based upon the channel polarity
when the good address mark is detected.

11. (currently amended) The apparatus of claim 10, and if the good address mark is not found
during the first read gate period, then prior to the identifying step the ~~head~~ transducer polarity
detection routine further comprising:
    toggling the polarity of the channel to a second polarity; and
    searching for the good address mark during a second read gate period with the channel
polarity set to the second polarity.

12. (currently amended) The apparatus of claim 11, wherein the ~~head~~ transducer polarity detection
routine further comprises repeating the steps of searching for the good address mark during
subsequent read gate periods until the good address mark is found, the polarity of the channel
being toggled between the first and second polarities after the completion of each read gate
period in which the good address mark is not found.

13. (original) The apparatus of claim 12, wherein setting the read gate period duration to the first
value further comprises setting a servo gate period duration to a time corresponding to a
predetermined number of servo sectors.

14. (currently amended) The apparatus of claim 13, wherein the ~~head~~ transducer polarity detection
routine steps of searching for the good address mark signal further comprise:
    determining whether an address mark has been detected;
    de-asserting the read gate if it is determined that an address mark has been detected; and
    determining whether the detected address mark qualifies as the good address mark.

15. (currently amended) The apparatus of claim 14, wherein if it is determined that the detected
address mark qualifies as the good address mark, the ~~head~~ transducer polarity detection routine
further comprising setting the servo gate period duration to a time corresponding to one servo
sector.

-5-

16. (currently amended) The apparatus of claim 12, and further comprising a plurality of ~~data~~ ~~head~~transducers, wherein the circuitry is further configured to perform a method comprising:

performing the ~~head~~transducer polarity detection routine for each of the plurality of ~~data~~ ~~head~~transducers to determine a polarity for each ~~data head~~transducer; and

storing the polarity for each of the plurality of ~~data head~~transducers.

17. (currently amended) The apparatus of claim 16, wherein the method further comprises:

determining if a predetermined number of consecutive errors have occurred; and

if the predetermined number of consecutive errors have occurred, then performing the ~~head~~transducer polarity detection routine to determine whether a ~~head~~polarity flip has occurred.

18. (currently amended) The apparatus of claim 17, wherein the method further comprises updating the stored polarity for any ~~head~~transducer which is determined to have had a ~~head~~ polarity flip.